

## CASE STUDY

### BACKGROUND

Near Asheville, North Carolina, a critical section of Interstate 40 was scheduled for replacement—an essential infrastructure update for a major transportation corridor. While recent flooding underscored the importance of the project, the repair had been planned in advance to ensure continued safety and reliability. The end customer, a bridge contractor, required a robust, precisely controlled gantry system capable of lifting and positioning massive concrete girders to complete the highway span rebuild.



### CHALLENGE

Designing and integrating a system that could:

- **Safely lift and position** large concrete girders weighing tens of thousands of pounds.
- **Synchronize movement** between two independent lifting machines - one at each end of the girder.
- **Provide precise control** of X and Y movement to ensure accurate placement.
- **Operate reliably** in demanding outdoor conditions.
- **Enable wireless control** of both hydraulic and engine functions.

## SOLUTION

SCOTT's engineering team partnered closely with the customer to design, supply, and integrate a complete control and hydraulic solution.

### Key System Components including *Danfoss*

- Two Diesel Hydraulic Power Units (HPUs) powering the lifting actuators.
- PVG32 Proportional Valves for smooth, precise movement in both axes.
- MC038-10 Plus+1® Controller for system logic and safety interlocks.
- IK3 Radio Control Transmitter paired with dual receivers for fully wireless operation.
- MPCAN Receiver Modules to handle CAN bus communication between controllers, engines, and valves.

## HIGHLIGHTS

- Each end of the gantry is operated independently, allowing precise alignment during lift and placement.
- One radio transmitter controls both machines simultaneously, significantly improving operator efficiency.
- CAN bus communication ensures real-time synchronization of engine throttles and PVG valve outputs.
- Operators seamlessly control engine start/stop, throttle, and all hydraulic functions from the remote station.
- Engine operation feedback—including fuel level, temperature, and battery status—was displayed at the operator station for full system awareness and performance monitoring.

## RESULT

After successful testing, the system is now deployed in the field to complete the Interstate 40 bridge rebuild. The customer is highly satisfied with the performance, safety features, and ease of use of the solution.

### ✓ Precision Control

Ensured accurate girder placement to meet tight engineering tolerances.

### ✓ Operator Safety

Wireless control reduced operator exposure to hazards.

### ✓ Seamless Integration

SCOTT's expertise combined hydraulic and electronic controls into a cohesive, reliable system.